

Western Electric Co., Incorporated,
Engineering Dept.,
New York.

(3 Pages) Page #1.
Issue 1 - BT-431718.
July 29, 1921.

See T44 1196

METHOD OF OPERATION TELEPHONE CIRCUIT

Arranged To Give Busy and Check Tone - Test Where Zero Operator's Cord -
Requires 37 Ohm Outgoing Trunk Sleeves - Without Incoming Call Circuit -
Special A Switchboard - Full Mechanical Power Driven System.

GENERAL DESCRIPTION

1. This circuit is used by an operator at a special "A" switchboard position to communicate with subscribers and other operators. It is used with zero operator's cords whose sleeves are connected to battery through a maximum resistance of 119 ohms, with outgoing trunks whose sleeves are grounded through a maximum resistance of 39 ohms, and with intercepted service and blank lines whose sleeves are grounded through a maximum resistance of 525 ohms.

2. It is arranged to provide a click in the receiver when the plug of a calling cord is touched to the sleeve of a jack of a busy line. It is also arranged to receive a dial tone when a dial is used for completing calls to mechanical offices.

3. When completing an AB toll or two number call, it is necessary to test the number of the calling station. To accomplish this a checking multiple is provided, in which appear discs for all the subscriber's lines in the office. The operator inserts the plug of the answering cord in the trunk to which the calling subscriber is connected, and requests the calling subscriber's number. The operator then touches the tip of the calling cord to the multiple checking disc of the line mentioned by the subscriber. If the subscriber has given the correct number the operator receives a distinctive tone; if the wrong number is given, the operator will hear the usual busy signal.

DETAILED DESCRIPTION

4. The telephone circuit is normally disconnected from the cord circuit. When a talking key in the cord circuit is operated, ground is connected to lead CO, operating the T relay. The operation of the T relay connects the tip and ring of the telephone circuit to the cord circuit and opens the dial tone circuit. To make a busy test, the tip of the plug of the calling cord is touched to the jack of an outgoing trunk. If the trunk is busy, a circuit is closed from battery on the sleeve of the cord already in the jack, over the tip of the cord with which the busy test is being made, through the contact of a relay in the cord circuit, lead BT, through the windings of the CT and BT relays, to ground operating both relays. The operation of the CT relay performs no useful function at this time. The operation of the BT relay closes a circuit from battery through the 46-B or 47-B retardation coil, contact of the BT relay, to ground through the 40 ohm winding of the 20-A repeating coil, which induces a current in the 277 ohm winding of the repeating coil producing a click in the receiver. When the tip of the plug of the calling cord is removed from the sleeve of the jack, the BT relay releases, opening the circuit through the 40 ohm winding of the 20-A repeating coil and inducing another current in the 277 ohm winding of the repeating coil which produces another click in the receiver.

5. When the plug of the answering cord is inserted in a line jack, in answering an AB toll or a two number call, it is necessary to make a test check to verify the number of the calling party. When the tip of the plug of the calling cord is touched to the multiple checking desk corresponding to the calling station, a circuit is closed from battery on the multiple checking over the BT lead through the windings of the CT and BT relays to ground operating the BT and CT relays as in the case of a busy test. If the calling subscriber has given the operator the correct number, the operation of the CT relay closes the tone circuit over the lead CT to the sleeve of the answering cord, sleeve of the trunk jack, sleeve of the line multiple jack, multiple checking disc, through the tip of the calling cord, contacts of a relay in the cord circuit, lead BT, 2 M.F. condensers contact of the BT relay, to ground through the 40 ohm winding of the 20-A repeating coil. If the wrong number is given, the tone will not be heard in the receiver since the tone circuit cannot be completed from the sleeve of the trunk jack to the sleeve of the checking multiple jack.

6. When the call is completed to a mechanical office, by means of a dial, the dial key in the cord circuit is operated, and the dial tone is connected to the lead BT through the break contact of the T relay to the 40 ohm winding of the 20-A repeating coil, and is heard in the receiver.

(3 Pages) Page #3.
Issue I - BT-431713.
July 29, 1921.

CIRCUIT REQUIREMENTS

	<u>OPERATE</u>	<u>NON-OPERATE</u>	<u>RELEASE</u>
B122 CT	Test .007 amp. Readj. .003 amp.		Test .0005 amp. Readj. .001 amp.
B157 BT	Test .0016 amp. Readj. .0015 amp.		Test .0002 amp. Readj. .0003 amp.
E577 T	Test .023 amp. Readj. .017 amp.	Test .0035 amp. Readj. .010 amp.	

ENG. HTW-TB.
5/16/22.

CHK'D.---WCD-CWP.

APPROVED - C.L. SLOVTER, G.M.L.

